

WHAT IS CLAIMED IS:

1 1. A method of converting page description data
2 specifying a print document into pixel data for an individual
3 page employing a data processing system including a central
4 processing unit, a first memory having a first data size and a
5 first data transfer rate and a second memory having a second
6 data size smaller than the first data size and a second data
7 transfer rate faster than the first data transfer rate, the
8 method comprising the steps of:

9 extracting a display list from the page description data;
10 allocating space within the first memory to serve as a
11 page buffer;

12 dividing the page buffer within the first memory into a
13 plurality of sub-bands, each sub-band having a data size
14 smaller than the second data size;

15 for each sub-band within the page buffer
16 for each element of the display list rendering
17 pixels within the current sub-band into a corresponding
18 memory location within the second memory,

19 following the rendering step, transferring pixel
20 data from the second memory to corresponding memory
21 locations within the current sub-band of the page buffer;
22 following the rendering and transferring steps for all
23 sub-bands, printing a page by transfer of data from the page
24 buffer to a print engine.

1 2. The method of claim 1, further comprising the step
2 of:
3 disposing the central processing unit and the second
4 memory on the same integrated circuit.

1 3. The method of claim 1, further comprising the step
2 of:
3 prior to the rendering step for each sub-band within the
4 page buffer, copying display list elements that may render to
5 the current sub-band to the second memory, and
6 wherein the rendering step employs the copy of display
7 list elements stored in the second memory.

1 4. The method of claim 3, further comprising the step
2 of:
3 prior to the rendering step for each sub-band within the
4 page buffer, copying auxiliary data required by the display
5 list elements that may render to the current sub-band to the
6 second memory, and
7 wherein the rendering step employs the copy of auxiliary
8 data stored in the second memory.

1 5. The method of claim 1, wherein the digital processing
2 system includes a partitionable memory selectively
3 partitionable between cache and directly addressable memory,
4 the method further comprising the step of:
5 prior to the rendering step for a first sub-band
6 partitioning the partitionable memory to include directly
7 addressable memory to serve as the second memory.

1 6. The method of claim 1, further comprising the step
2 of:

3 following transferring pixel data from the second memory
4 to corresponding memory locations within the current sub-band
5 of the page buffer, compressing the pixel data and storing the
6 compressed pixel data in the first memory; and

7 the printing step includes recall and decompression of
8 the compressed pixel data.